

*{Sobaly}* SPIN VALVE READ HEAD WITH ANTFERROMAGNETIC OXIDE FILM AS LONGITUDINAL BIAS LAYER AND PORTION OF FIRST READ GAP

**ABSTRACT OF THE DISCLOSURE**

An antiferromagnetic stabilization scheme is employed in a magnetic head for magnetically stabilizing a free layer of a spin valve. This is accomplished by utilizing an antiferromagnetic oxide film below a spin valve sensor in a read region and first and second lead layers in end regions and a ferromagnetic film in each of the lead layers that exchange couples to the antiferromagnetic oxide film in the end regions. The ferromagnetic films are pinned with their magnetic moments oriented parallel to an air bearing surface (ABS) of the magnetic head. The ferromagnetic <sup>films</sup> ~~film~~ magnetostatically couples to the free layer which causes the free layer to be in a single magnetic domain state. Accordingly, when the free layer is subjected to magnetic incursions from a rotating disk in a disk drive, the free layer maintains a stable magnetic condition so that resistance changes of the free layer are not altered by differing magnetic conditions of the free layer.